

# 2002 Annual Compliance Report Lakeview, Oregon, Disposal Site

## Compliance Summary

The site, inspected on May 21 and 22, 2002, was in good condition. A revised Long-Term Surveillance Plan, which includes a recalculated design criterion for the median diameter of the side slope riprap, is pending U.S. Nuclear Regulatory Commission (NRC) concurrence. Results of the fourth annual gradation test on the west side slope indicate that the median diameter of the riprap remains substantially above the recalculated design criterion. Ground water monitoring was not required in 2002. The entrance sign was illegible and later replaced, and minor fence repairs were performed. No other maintenance was required, and no need was identified for a follow-up or contingency inspection.

## Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Lakeview, Oregon, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site are specified in the *Long-Term Surveillance Plan for the Collins Ranch Disposal Site, Lakeview, Oregon* (DOE/AL/62350-19F, Rev. 3, U.S. Department of Energy [DOE], Albuquerque Operations Office, August 1994) and in procedures established by the DOE Grand Junction Office to comply with requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27). These requirements are listed in Table 9-1. A revised Long-Term Surveillance Plan for the site, prepared in August 2002, is pending NRC concurrence.

9A

Table 9-1. License Requirements for the Lakeview, Oregon, Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Section 6.1	Section 1.0
Follow-up or Contingency Inspections	Section 7.0	Section 2.0
Routine Maintenance and Repairs	Section 8.0	Section 3.0
Ground Water Monitoring	Section 5.3	Section 4.0
Corrective Action	Section 9.0	Section 5.0

## Compliance Review

### 1.0 Annual Inspection and Report

The site, northwest of Lakeview, Oregon, was inspected on May 21 and 22, 2002. Results of the inspection are described below. Features and the photograph locations (PLs) mentioned in this report are shown on Figure 9-1. Numbers in the left margin of this report refer to items summarized in the Executive Summary table.

## 1.1 Specific Site Surveillance Features

**Access Road, Entrance Gate, Fence, and Signs**—Access to the site is gained by traveling a gravel road that heads west off of County Road 2–16B. The 1.2-mile access road between the county road and the DOE property boundary has a perpetual easement across private property (Collins Ranch). A DOE lock is on a cable gate that is in place across the access road at a cattle guard located approximately 0.5 mile east of the site.

9B A barbed wire boundary fence encompasses the site. Strands of the fence that were loose or broken were repaired.

9C The painted surface of the entrance sign had peeled away and the sign was illegible (PL–1). As a temporary measure, inspectors wrote the Grand Junction Office contact telephone number on the entrance sign; the sign was later replaced. Nine of the twelve perimeter signs were in good condition. Perimeter signs P9, P10, and P12 have been damaged by bullets; however they were still legible so replacement is not yet warranted.

**Site Markers and Monuments**—The two site markers, three survey monuments, and three boundary monuments were in excellent condition. Two of the survey monuments, SM–1 and SM–2, are located on property corners.

**Monitor Wells**—Nine monitor wells are in the ground water monitoring network. All of the wells were inspected and found to be locked and in good condition.

## 1.2 Transects

To ensure a thorough and efficient inspection, the site was divided into three areas referred to as transects: (1) the top of disposal cell; (2) the side slopes of the disposal cell and adjacent drainage channel, aprons, and trench drains; and (3) the site perimeter and outlying area.

**Top of the Disposal Cell**—The design for the top of the disposal cell has produced conditions that favor the growth of deep-rooted plants. Although the top slope was seeded with grasses, the sparse cover is a consequence of the thin (nominal 4-inch-thick) topsoil layer. The low water-storage capacity of the topsoil layer will continue to limit perennial grass growth under current climatic conditions. Movement of precipitation through the riprap and bedding layers and into the radon barrier favors the growth of shrubs. Many mature rabbitbrush plants and a few mature sagebrush and bitterbrush plants grow on the top of the disposal cell. Shrub density likely will increase until it approaches or exceeds population levels in native plant communities adjacent to the site.

9D Deep-rooted plants have the potential to increase the hydraulic conductivity of the radon barrier, allowing meteoric water to leach contaminants from the encapsulated tailings and into the underlying soil and ground water. The Long-Term Surveillance and Maintenance Program is currently conducting an investigation of how biointrusion affects permeability of the radon barrier. The study is expected to be completed by spring 2003.

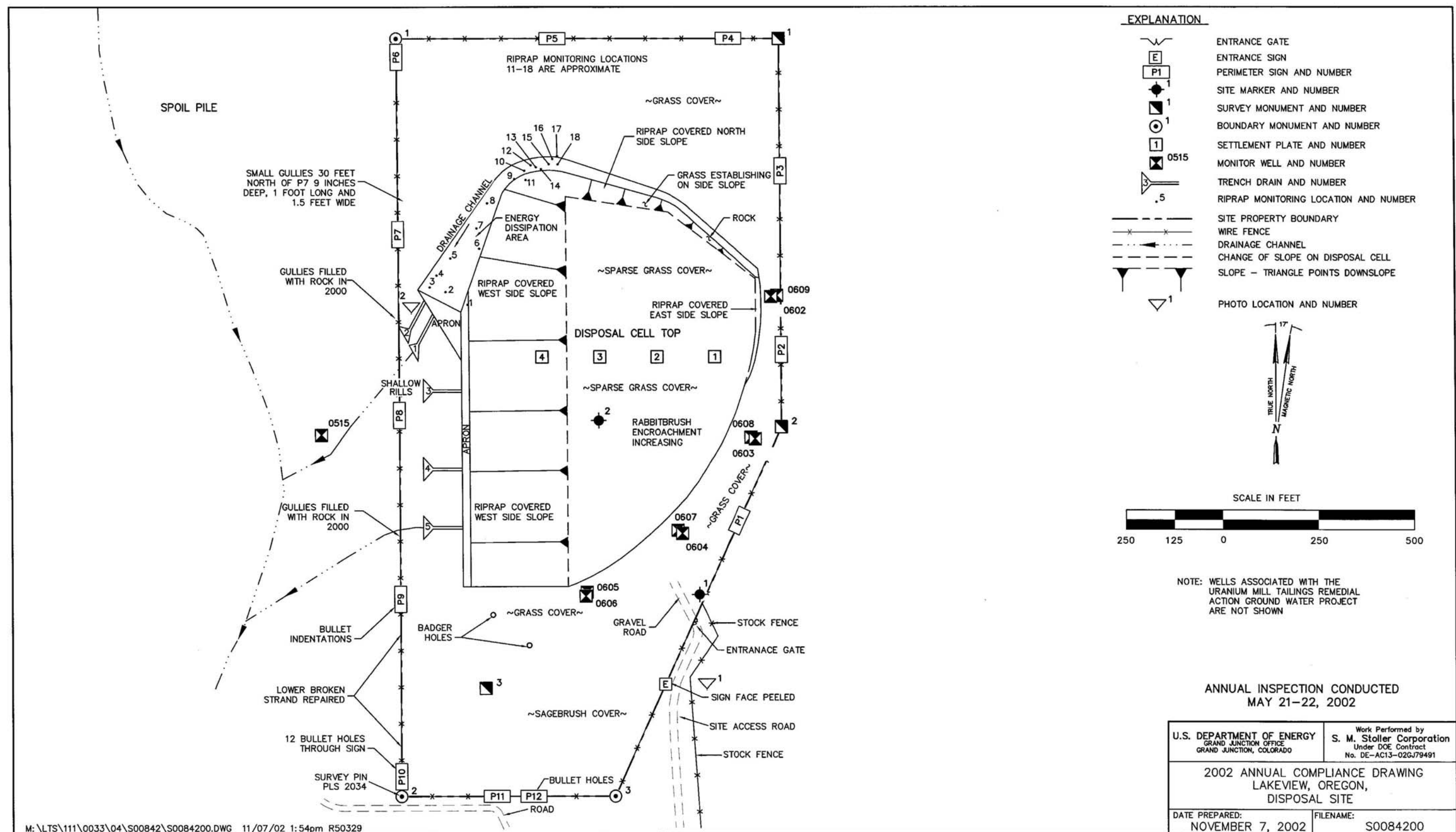


Figure 9-1. 2002 Annual Compliance Drawing for the Lakeview, Oregon, Disposal Site

### **Side Slopes of the Disposal Cell and Adjacent Drainage Channel, Aprons, and Trench**

**Drains**—Deterioration of riprap on the west and north side slopes and in the energy dissipation area at the lower end of the drainage channel is an ongoing concern because the percentage of crumbling rocks on the surface has noticeably increased since the riprap was placed in 1989.

A side slope riprap gradation test was performed for the fourth year. Data were collected at 20 locations, and results indicated that the median diameter ( $D_{50}$ ) of side slope riprap was 2.35 inches. The original design specified a  $D_{50}$  of 2.7 inches.

Riprap for the Lakeview disposal cell was sized to withstand the erosive energy of a probable maximum precipitation event—a conservative, worst-case scenario in which the most severe meteorological conditions possible combine and occur at the same time.

9E To determine if the riprap degradation posed a risk for cell erosion, potential runoff from the disposal cell was reanalyzed using the U.S. Army Corps of Engineers Hydrologic Modeling System computer program that is currently accepted by the NRC. Based on this analysis, the recalculated  $D_{50}$ —the minimum rock diameter necessary to protect the disposal cell during a probable maximum precipitation event—is 1.8 inches. This recalculation is included in the revised Long-Term Surveillance Plan that is pending NRC concurrence.

The measured  $D_{50}$  of 2.35 inches is substantially greater than the recalculated design criterion. DOE will continue annual gradation tests at the Lakeview disposal cell to ensure that the side slopes of the cell are protected from erosion. If it becomes apparent that the riprap is continuing to deteriorate and that the measured  $D_{50}$  will eventually fall below 1.8 inches, DOE, in consultation with NRC, will evaluate alternatives and mitigate the problem, as necessary.

Eighteen locations selected for long-term rock monitoring in the drainage channel were photographed. Identification numbers were repainted where needed. No discernable rock degradation was observed since monitoring began at the ten original locations established in 1997 or at the eight additional locations established in 2000.

Grass encroachment persists in the riprap on the north side slope and in the drainage channel. Relatively sparse plant growth in the drainage channel will not influence the function of the channel and is not considered a problem.

Standing water observed during past inspections was absent from the large depression in the lower end of the drainage channel. Water is a concern because inundation may accelerate deterioration of the large riprap due to freeze-thaw processes and secondary mineralization or alteration.

**Site Perimeter and Outlying Area**—Gullies that formed in seeded areas extending west of Trench Drains 1, 2, 3, 4, and 5 were filled with rock in 2000. The rock has nearly arrested the headcutting that was proceeding from the Collins Ranch property onto the DOE property (PL-2). The headcuts, if allowed to grow, could enable cattle to enter the site. There was no evidence of livestock on the site.

The native grass and shrub communities within 0.25 mile of the site boundary were unchanged.

## 2.0 Follow-up or Contingency Inspections

No follow-up or contingency inspections were required in 2002.

## 3.0 Routine Maintenance and Repairs

DOE replaced the entrance sign, performed minor fence repairs, and repainted some rock monitoring identification numbers in 2002.

## 4.0 Ground Water Monitoring

DOE monitors ground water at this site once every 5 years. Eight point of compliance wells (four monitor well pairs: 0602/0609, 0603/0608, 0604/0607, and 0605/0606) are located east of the cell; the upgradient well (0515) is west of the cell. Ground water was sampled in 1999 and the results were included in the 1999 annual report. Ground water will be sampled again in 2004.

## 5.0 Corrective Action

Corrective action is action taken to correct out-of-compliance or hazardous conditions that create a potential health and safety problem or that may affect the integrity of the disposal cell or compliance with 40 CFR 192.

No corrective action was required in 2002.

## 6.0 Photographs

*Table 9–2. Photographs Taken at the Lakeview, Oregon, Disposal Site*

<b>Photograph Location Number</b>	<b>Azimuth</b>	<b>Description</b>
PL–1	270	Unreadable entrance sign.
PL–2	270	Headcutting under west boundary fence.



*PL-1. Unreadable entrance sign.*



*PL-2. Headcutting under west boundary fence.*

End of current section